3. LOCATION OF RESIDENCE AS A FACTOR LEADING TO HIGHLY EXPOSED POPULATIONS

Some populations may experience greater potential exposures due to either the location or condition of their residence, or the ambient environment surrounding their residence. This chapter presents the issues that may effect populations living in or near:

- Waste management facilities,
- Inner cities,
- Urban areas,
- Coastal areas,
- Native American reservations or trust areas, and
- Major highways.

3.1. POPULATIONS LIVING NEAR WASTE MANAGEMENT FACILITIES

Populations residing or working near a variety of waste management facilities may experience exposures higher than those of the general population. Types of waste management facilities include solid waste disposal landfills, municipal waste incinerators, medical waste incinerators, and Superfund or Brownfields sites.

Exposure assessors are reminded that factors such as age, cumulative number of years an individual has lived in his or her residence, hours per day spent at one's residence, daily activities, and proximity to waste management facilities can influence the type, duration, and degree of contact with hazardous chemicals (ATSDR, 1996). Data quantifying populations living near waste management facilities may not be readily available; however, data can be generated on a case-by-case or site-specific basis. Information on solid waste landfills, municipal waste incinerators, medical waste incinerators, and other types of waste management facilities can be obtained from Envirofacts. (See Section 11 for a description.)

Information on hazardous waste sites may be obtained from EPA information gathered under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and its 1986 Superfund Amendments and Reauthorization Act (SARA). Especially useful is the Comprehensive Environmental Response, Compensation, and Liability Act Information System (CERCLIS) database that lists the approximately 40,000 hazardous waste sites to be screened by EPA for possible placement on the National Priorities List (NPL). The NPL lists inactive hazardous waste sites eligible for federally funded cleanup. Data on the number of NPL sites per

State in 1994 have been reported by the U.S. Bureau of the Census (1995) and are presented in Table 3-1. Information on locations of major industrial facilities (e.g., manufacturers/processors of steel, chemicals, concrete) is most readily available from trade associations concerned with the specific type of product. Estimates of emissions/releases of many hazardous pollutants to water, air, etc., are available from EPA-maintained databases, such as the Toxics Release Inventory (TRI). The Chemical Information System (CIS) contains information on specific chemical substances, including toxicological, carcinogenic, and environmental data. It also includes other EPA databases, such as ACQUIRE, CERCLIS, and RCRIS.

The U.S. Bureau of the Census is a major population database on size, distribution, and demographic characteristics of the Nation's population. These data can be used to help characterize populations near waste management facilities and other facilities that release chemicals into the environment. Population characteristics, such as sex, race, ethnicity, and household income can be determined from the census data. Population density within a selected proximity to a specific waste management facility can be estimated using the 1990 census data and tools such as a Geographic Information System (GIS). GIS maps can be produced that indicate the proximity of waste management facilities to nearby populations. Another source of demographic/economic information that can be used to characterize population groups are commercial marketing companies, which usually require a fee to provide information. For additional information sources in electronic format or on the Internet, please refer to information on accessing U.S. Bureau of the Census data in Section 11.

The following studies offer data that characterize the populations living near hazardous waste sites according to race/ethnicity and/or income. Some of the studies support the theory that hazardous waste sites are located in predominantly minority or low-income communities, while some do not. Table 3-2 provides a list of studies that evaluate populations living near hazardous waste sites. This table does not provide a complete listing of all sources available, but is presented to provide data sources with examples of various methodologies used to identify or quantify populations around hazardous waste sites. Most of the studies were developed or conducted to address issues of environmental justice. However, an assessor may find that the methodologies used may be useful for addressing population issues other than those related to environmental justice. It should be noted that studies that have been used to examine the residential proximity to a limited number of environmental hazards by race/ethnicity and socioeconomic status should be used with caution. The reader is directed to local, regional, State, and/or Federal agencies maintaining the types of data needed for a site-specific study. No overall conclusion is presented in this document. Two key studies on this issue are described below in

terms of their methodology, data source, conclusions, and limitations. The others are summarized in Table 3-2.

3.1.1. ATSDR Biennial Report to Congress 1991 and 1992 (ATSDR, 1996)

The National Research Council (NRC), using data from EPA, has estimated that approximately 41 million people live less than 4 miles from one or more of the Nation's 1,134 NPL sites. NRC also estimated that an average of 3,325 persons live within 1 mile of any given NPL site. The Agency for Toxic Substances and Disease Registry (ATSDR) conducted public health assessments in 1991 and 1992, and results showed that the number of people who are actually or potentially exposed to hazardous waste at a site can range from 0 to 735,000 people. The exposure of people living near hazardous waste sites can be affected by certain activities. For instance, activities such as children playing near the site and people eating fish and game animals exposed to site contaminants have been associated with an increased potential for exposure to certain contaminants. People living near hazardous waste sites are potentially exposed to multiple substances.

ATSDR, an agency of the U.S. Department of Health and Human Services (DHHS), provides information on effects of public health of hazardous substances in the environment. ATSDR data, documents, and toxicity information are accessible on the World Wide Web via the Internet. (See Section 11.)

3.1.2. Distribution of Industrial Air Emissions by Income and Race in the United States: An Approach Using the Toxics Release Inventory (Perlin et al., 1995)

This study examines several methodological approaches important in the planning and decision-making process relevant to facility emissions and their impact on health and risk to populations in the surrounding communities.

Perlin et al. (1995) conducted a national and regional comparison study to investigate the differences by ethnicity/race and household income using county-level air emissions of chemicals from certain industrial operations in the United States. This study made national and regional comparisons using emission estimates from the 1990 TRI, demographic data from the 1990 census, and 1990 income data from the Donnelley Marketing Information Services (DMIS). The 1990 census data (Public Law 94-171) were employed to enumerate the populations of all U.S. counties by race and ethnicity. The races were categorized as white, black, Native American, Asian or Pacific Islander (A/P), and "other" races, while Hispanic was categorized as an ethnic group. The 1990 DMIS estimates were based on projections from the 1980 Census, adjusting the

values whenever necessary using income data from the Internal Revenue Service and inflation data from the Consumer Price Index.

Table 3-3 presents the distribution of TRI facilities and racial/ethnic populations among EPA regions in 1990. Region 5 had the highest percentage of the Nation's white population (20%); Region 4 had the highest percentage of the black population (30%); Region 6 had the highest percentage of Native Americans (25%); and Region 9 had the highest percentage of Asian and Pacific Islanders (50%) and other races (44%), as well as the highest percentage of the Hispanic population (38%).

Perlin et al. (1995) stressed that residing in a county, Zip Code, or census tract with one or more potential sources of pollution (e.g., hazardous waste site, chemical plant) or with above-average pollutant emissions does not necessarily imply that residents are exposed to higher than average ambient concentrations of environmental agents. The study further states there may, in fact, be no direct relationship within a particular geographic unit of analysis between (1) the presence of potential sources and/or estimated contaminant releases to the environment and (2) actual ambient levels of pollution encountered by people living there (Perlin et al., 1995).

3.2. POPULATIONS LIVING IN THE INNER CITIES OF LARGE METROPOLITAN AREAS

The inner city is defined by researchers as the most densely populated, often older areas of a large metropolitan area, usually geographically located in the central part of the city. Tables 3-4 and 3-5 provide population data from the U.S. Bureau of the Census (1995) for large metropolitan areas nationwide. The population data are also available from the U.S. Bureau of the Census on the Internet. (See Section 11.) If more specific local data are needed, readers are referred to their State, local, and regional governmental agencies or to the U.S. Bureau of the Census population data for the specific study/assessment area. (See Section 11, Table 11-1.) Residing in the densely populated centers of metropolitan areas potentially may increase an individual's exposure to certain toxic agents. Residents of inner cities may have higher exposures to certain air pollutants that are more commonly found in large metropolitan areas. These problem air pollutants may include, for example, carbon monoxide and lead from automobile exhaust, ozone, particulates, and volatile organic compounds.

In addition, for economic reasons, the inner cities of large metropolitan areas may have a higher percentage of housing that generally is older and less well maintained. Individuals living in older homes (especially those in poor repair) may be more exposed to peeling paint, older and less efficient heating systems, lead water pipes, etc.

Inner cities, along with coastal, urban, rural, and Native American reservation or trust land areas, may each experience unique exposures related to the culture, resources, land use practices, or activities associated with that setting.

3.3. POPULATIONS LIVING IN URBAN AREAS

An urban area is defined by the U.S. Bureau of the Census as a place (city, town, village, borough, etc.) having more than 2,500 inhabitants, and an urbanized area is one or more places and the adjacent densely populated surrounding territory that together have a minimum population of 50,000 persons (U.S. Bureau of the Census, 1995). Any area not classified as urban is considered rural. If a specific contaminant is known to occur at higher levels in an urban environment (e.g., dioxins in air), these data can be used to obtain an estimation of the size of the urban population that potentially may be exposed. Table 3-6 presents the urban and rural population of the United States from 1960 to 1990 by region, division, and State. Full descriptions of divisions and regions are provided in Section 2.4 of this report.

3.4. POPULATIONS LIVING IN COASTAL AREAS

Populations living in coastal areas are defined by the U.S. Bureau of the Census as persons living in counties or equivalent areas with at least 15% of their total land in a coastal drainage area (U.S. Bureau of the Census, 1995). Information on coastal drainage areas is obtained from the National Oceanic and Atmospheric Administration (NOAA). Total coastal land area in the United States is more than 3.5 million square miles (U.S. Bureau of the Census, 1995), with major coastal areas existing in the Atlantic, Gulf of Mexico, Great Lakes, and Pacific regions. Populations living very near or in coastal areas may experience higher exposures to contaminants in air and water resulting from industries typically located there, such as petroleum refineries, chemical manufacturing plants, and import/export facilities. Table 3-7 presents the population living in the coastal counties of the United States from 1960 to 1994, along with the total land area of the coastal regions.

3.5. POPULATIONS LIVING ON NATIVE AMERICAN RESERVATIONS OR TRUST LANDS

Based on 1990 census data, the U.S. Bureau of the Census (1995) reports that a total of more than 800,000 persons either live on reservations and trust lands with 5,000 or more residents, or identify themselves as members of a Native American Tribe with 10,000 or more

members. Table 3-8 presents these data by Tribe. The total Native American population numbers include those not living on reservations or trust lands.

The Department of Health and Human Services (DHHS), through the Indian Health Service (IHS) of the Public Health Service, provides federally funded health services to Native Americans and Alaska Natives (U.S. DHHS, 1993). IHS estimates its service population by counting those individuals who have identified themselves in the previous official U.S. census as American Indian, Eskimo, or Aleut and reside on or near reservations or trust lands. IHS's estimates of current and projected service population numbers by area are provided in Figure 3-1. The IHS population, estimated at 1.33 million for 1994, increases at a rate of about 2.35% per year (U.S. DHHS, 1993).

As cited by IHS (U.S. DHHS, 1993), numerous factors contribute to increased risk for individuals living on Native American reservations or trust lands. Some factors increasing risk for this population are as follows:

- Lower median household income;
- High percentage living below the poverty level;
- Higher birth rate; and
- High mortality rate from tuberculosis, alcoholism, diabetes, accidents, homicide, suicide, and pneumonia and influenza.

3.6. POPULATIONS LIVING NEAR MAJOR HIGHWAYS

Data are not readily available on the numbers of individuals living near major (interstate) highways. The most likely sources of data are State and/or local transportation offices or regional/local governmental organizations. For instance, in the Washington, DC, metropolitan area, the Council of Governments (COG) suggested that population numbers of persons living in the DC area near major highways could be determined from information available at its information office. COG uses census data to determine population numbers of small geographic units (subdivisions of counties) within its jurisdiction, maps produced from these data, and maps indicating locations of major highways to determine the numbers of persons living in the DC area near major highways. An assessor could use the same approach as COG to estimate the specific population of concern.

Data are available from the U.S. Bureau of the Census (1995) on highway mileage for interstates and other roadways by State. These data are presented in Table 3-9. Information is also available for motor vehicle registrations and vehicle miles of travel by State as shown in Table 3-10. If an average population per highway mile or vehicle mile can be estimated or

assumed, a potential highly exposed population could be determined. Readers are again referred to their State, local, and regional governmental agencies.

3.7. REFERENCES

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Table 3-1. Hazardous Waste Sites on the National Priority List by State: 1994

State	Total Sites	Rank	Percent Distribution	Federal	Non-Federal
Total	1,296	NA	NA	160	1,136
United States	1,283	NA	100.0	158	1,125
Alabama	13	28	1.0	3	10
Alaska	8	42	0.6	6	2
Arizona	10	36	0.8	3	7
Arkansas	12	32	0.9	0	12
California	96	3	7.5	23	73
Colorado	18	22	1.4	3	15
Connecticut	16	25	1.2	1	15
Delaware	19	20	1.5	1	18
District of Columbia	0	NA	NA	0	0
Florida	58	6	4.5	5	53
Georgia	13	28	1.0	2	11
Hawaii	4	46	0.3	3	1
Idaho	10	37	0.8	2	8
Illinois	37	11	2.9	4	33
Indiana	33	12	2.6	0	33
Iowa	19	20	1.5	1	18
Kansas	10	37	0.8	1	9
Kentucky	20	19	1.6	1	19
Louisiana	14	27	1.1	1	13
Maine	10	37	0.8	3	7
Maryland	13	28	1.0	4	9
Massachusetts	30	13	2.3	8	22
Michigan	77	5	6.0	1	76
Minnesota	41	8	3.2	3	38
Mississippi	5	45	0.4	0	5
Missouri	23	17	1.8	3	20
Montana	9	41	0.7	0	9
Nebraska	10	37	0.8	1	9
Nevada	1	50	0.1	0	1
New Hampshire	17	24	1.3	1	16
New Jersey	108	1	8.4	6	102
New Mexico	11	34	0.9	2	9
New York	85	4	6.6	4	81
North Carolina	23	17	1.8	2	21
North Dakota	2	49	0.2	0	2
Ohio	38	10	3.0	5	33
Oklahoma	11	35	0.9	1	10
Oregon	13	28	1.0	2	11
Pennsylvania	102	2	8.0	6	96
Rhode Island	12	32	0.9	2	10
South Carolina	26	15	2.0	2	24
South Dakota	4	46	0.3	1	3
Tennessee	18	22	1.4	4	14
Texas	30	13	2.3	4	26
Utah	16	25	1.2	4	12
Vermont	8	42	0.6	0	8
Virginia	25	16	1.9	6	19
Washington	56	7	4.4	20	36
West Virginia	6	44	0.5	2	4
Wisconsin	40	9	3.1	0	40
Wyoming	3	48	0.2	1	2
Other areas					
Guam	2	NA	NA	1	1
Puerto Rico	9	NA	NA	1	8
Virgin Islands	2	NA	NA	0	2

NA = Not applicable.

Source: Adapted from U.S. Bureau of the Census, 1995.

Table 3-2. Sources of Data Used in Major Studies Concerning Populations Living Near Hazardous Waste Sites

Study [a]	Study Focus	Hazardous Waste Site [b] Data Source	Population Data Source
Anderton et al., 1994 (study conducted at Univ. of Mass., sponsored by grant from Waste Management Institute)	Census tracts nationwide 454 privately owned/operated TSDFs in 48 contiguous States that opened before 1990, were operating in census tract during 1980, and still in operation at time of study. "Surrounding area" = 2.5 mile radius from center of tract.	Environmental Institute's 1992 "Environmental Services Directory"	Census data; census tract level (authors define tract as ≈ 4,000 persons)
U.S. General Accounting Office, 1983	U.S. Congress requested local study of four hazardous waste facilities in EPA Region 4.	Four off-site landfills (not industrial facilities) in AL, NC, SC	Census data
Geschwind et al., 1992	Authors evaluated possible correlations between congenital malformations in newborns with mother's proximity to hazardous waste sites in NY State.	New York State's Hazardous Waste Site Inspection Program - 917 waste sites in 62 counties of NY State	New York State Dept. of Health's Congenital Malformations Registry for 1983 and 1984, which listed 34,411 cases of congenital malformations
Glickman et al., 1994	Evaluates relationship between location of manufacturing facilities releasing air toxins with socioecon. char. of communities for both communities with and without these facilities in Allegheny Co., PA (including Pittsburgh).	U.S. EPA's Toxic Release Inventory (TRI), 1990 emissions data	Socioeconomic and demographic data: 1990 census
Nieves and Nieves, 1992 (Authors from Argonne National Lab., Argonne, IL)	Facility types include: manufacturers of chemicals, petroleum products, plastics, rubber; pulp mills; smelters; incinerators; chemical weapons; radioactive waste disposal.	Potential air pollutants - 1985 National Acid Precipitation Assessment Program Inventory Commercial haz. waste - EPA's NPL list. Chemical weapon site data - Rouse, 1988. Radioactive waste sites - DOE 1991 Annual Report	1980 U.S. census data - 1983 County and City Data Book (county-level data; 3,109 counties in contiguous U.S.)
Perlin et al., 1995 (Authors with U.S. EPA)	Concerns environmental justice studies, discusses issues to address to strengthen scientific foundation of data. Evaluates nationwide TRI releases, Census data, income data	U.S. EPA's TRI, 1990 emissions estimates	Demographic data: 1990 Census Economic data: Donnelley Marketing Information Services [c]
Sosniak et al., 1994 (Authors from ATSDR and CDC, Atlanta, GA)	Evaluates possible correlation between low birth weight and mother's proximity to NPL sites. Mothers residing <1 mi of NPL were considered "exposed." Authors concluded merging large population data bases with environmental data is not an efficient method of evaluating low birth weight risks.	U.S. EPA's NPL list, 1990 Lat/Long of NPL site determined using EPA's 1987 Geographic Data File	Nationwide survey - 1988 National Maternal and Infant Health Survey (funded by ATSDR, National Center for Health Statistics) Postal Zip Codes determined for 17,407 mothers

Table 3-2. Sources of Data Used in Major Studies Concerning Populations Living Near Hazardous Waste Sites (continued)

Study [a]	Study Focus	Hazardous Waste Site [b] Data Source	Population Data Source
Stockwell et al., 1993	Characterizes releases of toxic chemicals using TRI data in southeastern U.S., by using geographic information system (GIS) mapping.	U.S. EPA's TRI, 1987 emissions data	Demographic data: 1980 census data
United Church of Christ, 1987 (Sponsored by United Church of Christ Commission for Racial Justice)	Nationwide study of 530 facilities and Zip Code areas. Facility site (vs. business address) identified with U.S. EPA's online Right to Know Network Facility Index Data System (FINDS).	U.S. EPA data compiled in "1992 Environmental Information Services Directory" by Environmental Information Ltd.	1990 census data updated to 1993 by marketing firm (Claritas, Inc.); 5-digit Zip code-level population data
Zimmerman, 1993	Distribution of NPL sites and socioeconomic characteristics of areas surrounding NPL sites are compared with national distribution/socioeconomic characteristics.	More than 800 inactive waste disposal sites on NPL	1990 census data; census tracts nationwide

[a] Complete citations are provided in the reference listing for this section.
[b] Facilities for treatment, storage, and disposal of hazardous wastes.
[c] Donnelley Marketing Information Services used 1980 census data, adjusting values using income data from the Internal Revenue Service and inflation data from the Consumer Price Index.

Table 3-3. Distribution of TRI Facilities and Racial/Ethnic Populations [a] Among EPA Regions in 1990

EPA Region	TRI Facilities [b]		Popula-tion [c]	White		Black		Native American [d]		A/P Islander [e]		Other Races [f]		Hispanic [g]	
	Number	Percent [c]	Percent [c]	Number [i] (x1,000)	Percent [c]	Number [j] (x1,000)	Percent [c]	Number [i] (x1,000)	Percent [c]	Number [i] (x1,000)	Percent [c]	Number [i] (x1,000)	Percent [c]	Number [i] (x1,000)	Percent [c]
I	1,528	7.0	13,208	12,033	6.0	628	2.1	33	1.7	232	3.2	282	2.9	568	2.5
II	1,671	7.6	25,721	19,516	9.8	3,896	13.0	78	4.0	966	13.3	1,265	12.9	1,954	13.2
III	2,033	9.3	25,917	21,146	10.6	4,011	13.4	49	2.5	464	6.4	247	2.5	575	2.6
IV	4,286	19.6	44,708	34,814	17.4	8,979	30.0	179	9.1	389	5.4	347	3.5	1,886	8.4
V	5,843	26.7	46,384	39,894	10.0	4,912	16.4	200	10.2	651	8.9	727	7.4	1,492	6.7
VI	2,072	9.5	28,218	21,288	10.7	3,959	13.2	484	24.7	421	5.8	2,066	21.1	5,118	22.9
VII	1,356	6.2	11,950	10,881	5.5	797	2.7	62	3.1	111	1.5	99	1.0	225	1.0
VIII	444	1.0	7,604	6,931	3.5	157	0.5	186	9.5	107	1.5	223	2.3	557	2.5
IX	1,981	9.1	35,734	24,869	12.5	2,425	8.1	470	24.0	3,624	49.8	4,346	44.3	8,582	38.4
X	650	3.0	9,264	8,311	4.2	221	0.7	219	11.2	309	4.3	204	2.1	398	1.8
Total	21,864		248,708	199,683		29,985		1,960		7,274		9,806		22,355	
M/W [j]						0.15		0.01		0.04		0.05		0.11	

[a] Racial/ethnic subpopulation category definitions and counts are from the 1990 census, Public Law 94-171.

[b] Total number of TRI facilities in the region and as a percent of the total number of U.S. TRI facilities. Total number of TRIs in the United States is 21,864.

[C] Percent of the U.S. population of each racial/ethnic group that resides in the specified region.

[d] Native American includes Inuits and Aleuts.

[e] A/P Islander is Asian and Pacific Islanders.

[f] Other races include the remaining races that constitute the nonwhite population. On a racial basis, the Census Bureau divides the total U.S. population into whites, blacks, American Indians, Asian or Pacific Islanders, and other races. On an ethnic basis, the Census Bureau divides the total United States population into people of Hispanic or non-Hispanic origin. Population counts by race do not distinguish between individuals of Hispanic and non-Hispanic origin. For example, a person identified as a white Hispanic would be counted as both white and Hispanic.

[g] Hispanics are counted separately as they are considered to be an ethnic population, not a race, and they are counted separately by the Census Bureau.

[h] For each region, the total U.S. population of all races (white, black, Native American, Asian and Pacific Islander, and other races).

[i] Total number of each racial/ethnic group residing in the specified region.

[j] Ratio of minority to white population for the United States.

Source: Perlin et al., 1995.

Table 3-4. Number and Population of Metropolitan Areas by Population Size-Class in 1990: 1980 to 1990

Level and Population Size-Class of Metropolitan Area in 1990	CMSAs and MSAs[a]				MSAs and PMSAs[a]		
			Population in 1990			Population in 1990	
	Number in 1990	Population in 1980 (mil.)	Total (mil.)	Percent in each class	Number in 1990	Total (mil.)	Percent in each class
Total, all metropolitan areas	**269**	**177.0**	**197.8**	**100**	**324**	**197.8**	**100**
Level A (1,000,000 or more)	40	118.7	132.9	67	51	118.7	60
2,500,000 or more	15	84.3	94.1	48	13	58.2	29
1,000,000 to 2,499,999	25	34.4	38.8	20	38	60.5	31
Level B (250,000 to 999,999)	96	41.2	46.4	23	119	56.9	29
500,000 to 999,999	33	21.4	24.3	12	41	29.4	15
250,000 to 499,999	63	19.8	22.0	11	78	27.5	14
Level C (100,000 to 249,999)	110	15.2	16.6	8	130	20.1	10
Level D (less than 100,000)	23	1.9	2.0	1	24	2.1	1

[a] [As of April 1. Data exclude Puerto Rico. CMSA = consolidated metropolitan statistical area. MSA = metropolitan statistical area. PMSA = primary metropolitan statistical area. Areas are as defined by the U.S. Office of Management and Budget, July 1, 1994.]

Source: U.S. Bureau of the Census, 1995.

Table 3-5 goes here

Table 3-6. Resident Urban and Rural U.S. Population, 1960 to 1990, and by State

[In thousands, except percent. As of April 1.]

Region, Division, and State	Total	Urban		Rural	Region, Division, and State	Total	Urban		Rural
		Number	Percent				Number	Percent	
1960	179,323	125,269	69.9	54,054	MD	4,781	3,888	81.3	893
1970	203,212 [a]	149,647	73.6	53,565	DC	607	607	100.0	--
1980	226,546 [b]	167,051	73.7	59,495	VA	6,187	4,293	69.4	1,894
1990, Total	248,710	187,053	75.2	61,656	WV	1,793	648	63.1	1,145
Northeast	50,809	40,092	78.9	10.717	NC	6,629	3,338	50.4	3,291
New England	13,207	9,829	74.4	3,378	SC	3,487	1,905	54.6	1,581
ME	1,228	548	44.6	680	GA	6,478	4,097	63.2	2,381
NH	1,109	566	51.0	544	FL	12,938	10,967	84.8	1,971
VT	563	181	32.2	382	East South Central	15,176	8,531	56.2	6,646
MA	6,016	5,070	84.3	947	KY	3,685	1,910	51.8	1,775
RI	1,003	863	86.0	140	TN	4,877	2,970	60.9	1,907
CT	3,287	2,602	79.1	686	AL	4,041	2,440	60.4	1,601
Middle Atlantic	37,602	30,263	80.5	7,340	MS	2,573	1,211	47.1	1,362
NY	17,990	15,164	84.3	2,826	West South Central	26,703	19,894	74.5	6,808
NJ	7,730	6,910	89.4	820	AR	2,351	1,258	53.5	1,093
PA	11,882	8,188	68.9	3,693	LA	4,220	2,872	68.1	1,348
Midwest	59,669	42,774	71.7	16,894	OK	3,146	2,130	67.7	1,015
East North Central	42,009	31,074	74.0	10,935	TX	16,987	13,635	80.3	3,352
OH	10,847	8,039	74.1	2,808	West	52,786	45,531	86.3	7,255
IN	5,544	3,598	64.9	1,946	Mountain	13,659	10,881	79.7	2,777
IL	11,431	9,669	84.6	1,762	MT	799	420	52.5	379
MI	9,295	6,556	70.5	2,739	ID	1,007	578	57.4	429
WI	4,892	3,212	65.7	1,680	WY	454	295	65.0	159
West North Central	17,660	11,700	66.3	5,959	CO	3,294	2,716	82.4	579
MN	4,375	3,056	69.9	1,319	NM	1,515	1,106	73.0	409
IA	2,777	1,683	60.6	1,094	AZ	3,665	3,207	87.5	458
MO	5,117	3,516	68.7	1,601	UT	1,723	1,499	87.0	224
ND	639	340	53.3	298	NV	1,202	1,061	88.3	140
SD	696	348	50.0	348	Pacific	39,127	34,650	88.6	4,477
NE	1,578	1,044	66.1	534	WA	4,867	3,718	76.4	1,149
KS	2,478	1,713	69.1	765	OR	2,842	2,003	70.5	839
South	85,446	58,656	68.6	26,790	CA	29,760	27,571	92.6	2,189
South Atlantic	43,567	30,231	69.4	13,336	AK	550	371	67.5	179
DE	666	487	73.0	180	HI	1,108	986	89.0	122

- Represents zero.

a The revised 1970 resident population count is 203,302,031; which incorporates changes due to errors found after tabulations were completed.

b Total population count has been revised since the 1980 census publications to 226,542,203.

Source: U.S. Bureau of the Census, 1995.

Table 3-7. U.S. Population Living in Coastal Counties: 1960 to 1994

Year	Total Land Area	Coastal Regions Populations (Millions)					
		Total	Atlantic	Gulf of Mexico	Great Lakes	Pacific	Remainder of U.S.
Land area in 1990 Unit = 1,000 sq. mi.	3,536	888	148	114	115	510	2,649
1960	179.3	94.5	44.5	8.4	23.7	17.9	84.8
1970	203.3	110.0	51.1	10.0	26.0	22.8	93.3
1980	226.5	119.8	53.7	13.1	26.0	27.0	106.7
1990	248.7	133.4	59.0	15.2	25.9	33.2	115.3
1994 (July)	260.3	138.5	60.7	16.3	26.4	35.1	121.8

Source: U.S. Bureau of the Census, 1995.

Table 3-8. Populations Living on Selected Reservations and Trust Lands and American Indian Tribes with 10,000 or More Persons: 1990
[In thousands, except percent. As of April 1.]

Reservation and Trust Lands With 5,000 or More American Indians, Eskimos, and Aleuts	Total population	American Indians, Eskimos, and Aleuts		American Indian Tribe	Number	Percent distribution
		Number	Percent of total			
All reservation and trust lands	808,163	437,431	54.1	American Indian population, total [b]	1,878,285	100.0
Navajo and Trust Lands, AZ-NM-UT	148,451	143,405	96.6	Cherokee	308,132	16.4
Pine Ridge and Trust Lands, NE-SD	12,215	11,182	91.5	Navajo	219,198	11.7
Fort Apache, AZ	10,394	9,825	94.5	Chippewa	103,826	5.5
Gila River, AZ	9,540	9,116	95.6	Sioux [c]	103,255	5.5
Papago, AZ	8,730	8,480	97.1	Choctaw	82,299	4.4
Rosebud and Trust Lands, SD	9,696	8,043	83.0	Pueblo	52,939	2.8
San Carlos, AZ	7,294	7,110	97.5	Apache	50,051	2.7
Zuni Pueblo, AZ-NM	7,412	7,073	95.4	Iroquois [d]	49,038	2.6
Hopi and Trust Lands, AZ	7,360	7,061	95.9	Lumbee	48,444	2.6
Blackfeet, MT	8,549	7,025	82.2	Creek	43,550	2.3
Turtle Mtn. and Trust Lands, ND-SD	7,106	6,772	95.3	Blackfoot	32,234	1.7
Yakima and Trust Lands, WA	27,668	6,307	22.8	Canadian and Latin American	22,379	1.2
Osage, OK [a]	41,645	6,161	14.8	Chickasaw	20,631	1.1
Fort Peck, MT	10,595	5,782	54.6	Potawatomi [d]	16,763	0.9
Wind River, WY	21,851	5,676	26.0	Tohono O'Odham	16,041	0.9
Eastern Cherokee, NC	6,527	5,388	82.5	Pima	14,431	0.8
Flathead, MT	21,259	5,130	24.1	Tlingit	13,925	0.7
Cheyenne River, SD	7,743	5,100	65.9	Seminole	13,797	0.7
				Alaskan Athabaskans	13,738	0.7
				Cheyenne	11,456	0.6
				Comanche	11,322	0.6
				Paiute	11,142	0.6
				Puget Sound Salish	10,246	0.5

[a] The Osage Reservation is coextensive with Osage County. Data shown for the reservation are for the entire reservation.
[b] Includes other American Indian Tribes, not shown separately.
[c] Any entry with the spelling "Siouan" was miscoded to Sioux in North Carolina.
[d] [e] Reporting and/or processing problems have affected the data for this Tribe.

Source: U.S. Bureau of the Census, 1995.

Figure 3-1 goes here

Table 3-9 goes here

Table 3-10 goes here

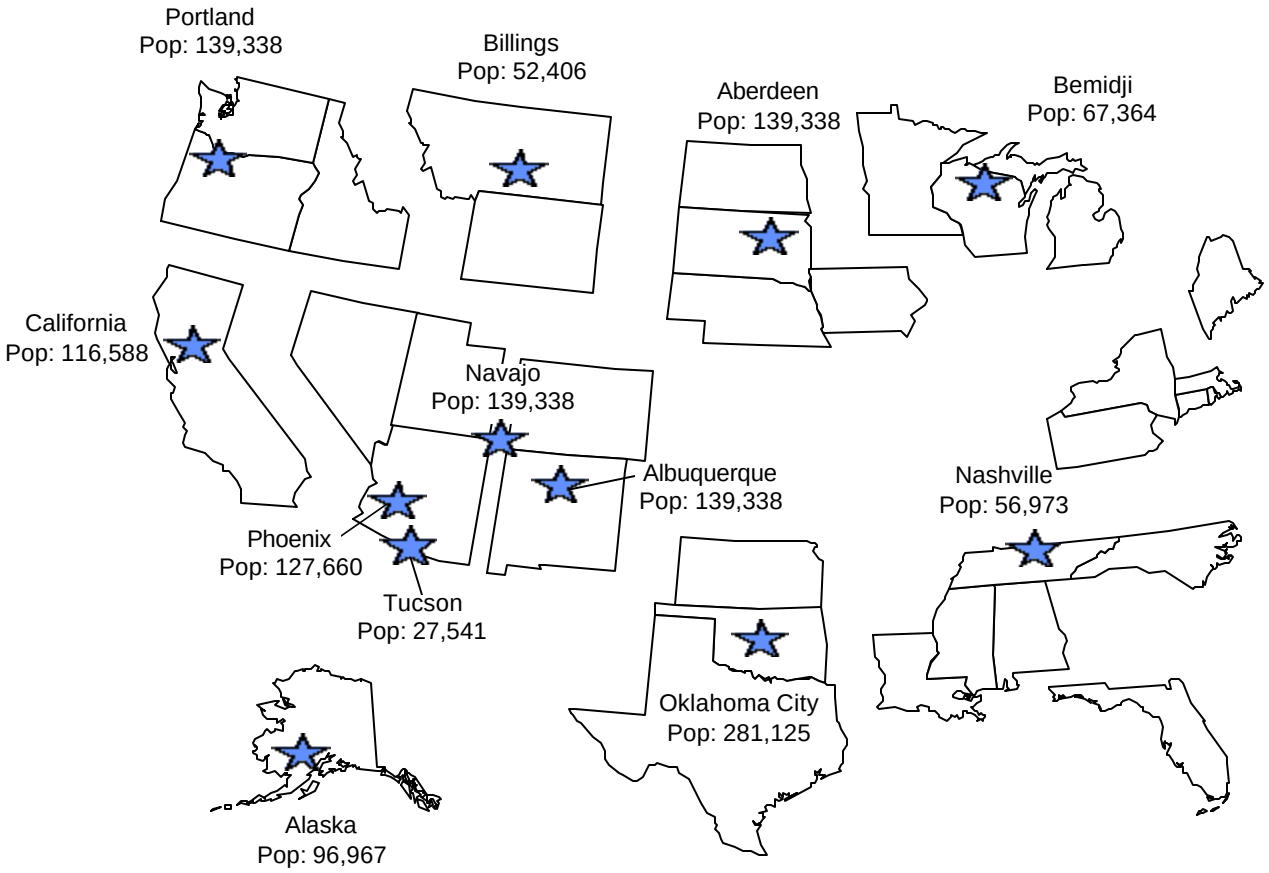

Figure 3-1. Indian Health Service Population: Area Offices and Populations Administered by Each Office.

LEGEND
IHS Area Office
NOTE: Texas is administered by the Nashville, Oklahoma City, and Albuquerque Area Offices

Source: U.S. DHHS, 1993.